

# 94309



Shand & Jurs Co.

A COGNESENSE BRAND

## Flame Arrester (Plate Element)

The Shand & Jurs® Model 94309 Flame Arrester prevents flame propagation within low-pressure gas and vapor piping connected to storage tanks and process equipment. Installed end-of-line, the arrester establishes a thermal barrier between a downstream ignition and the protected vapor space.

When a flame front enters the arrester, the plate element absorbs and dissipates heat, reducing the gas temperature below its ignition point and stopping flame travel. The large surface-area element maintains normal vapor movement with low pressure drop, allowing tank breathing and venting to continue without flow restriction. The passive design operates without controls, instrumentation, or external energy.

The extensible element assembly allows inspection and cleaning without removing the arrester from the piping. Vertical or horizontal installation, along with optional drains, helps manage condensate in wet-gas service. Arrester sizing and pressure-drop verification can be evaluated using the Shand & Jurs WinSize software to confirm compatibility with expected venting flow rates and API 2000 venting requirements.



### Key Features

|                                                                                                            |                                                                                                         |                                                                                                         |
|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Plate element flame path</b><br><br>Quenches flame by reducing the temperature below the ignition point | <b>High free-area element</b><br><br>Maintains vapor flow with minimal pressure drop                    | <b>Passive protection</b><br><br>Operates without instrumentation or external power                     |
| <b>Inline serviceable assembly</b><br><br>Allows inspection and cleaning without pipe removal              | <b>Multi-orientation installation</b><br><br>Vertical or horizontal mounting without performance change | <b>Optional Horizontal drain provision</b><br><br>Removes condensate that could obstruct the flame path |



Benefits



STOPS FLAME TRAVEL IN PIPING

Prevents flashback into tanks or digesters



MAINTAINS VENTING CAPACITY

Avoids pressure buildup during normal operation



NO ACTIVE COMPONENTS

Eliminates control failure modes



FIELD SERVICEABLE ELEMENT

Reduces maintenance downtime



CONDENSATE MANAGEMENT

Improves reliability in wet vapor service



DEFINED IGNITION BOUNDARY

Allows proper protection without higher-severity arresters

Available Options



Aluminum construction

Lightweight installation for standard service



Carbon steel construction

Increased mechanical durability



316 stainless steel construction

Corrosion resistance in aggressive vapors



Horizontal configuration with a drain

Removes collected condensate



Raised-face or flat-face flanges

Matches piping specification



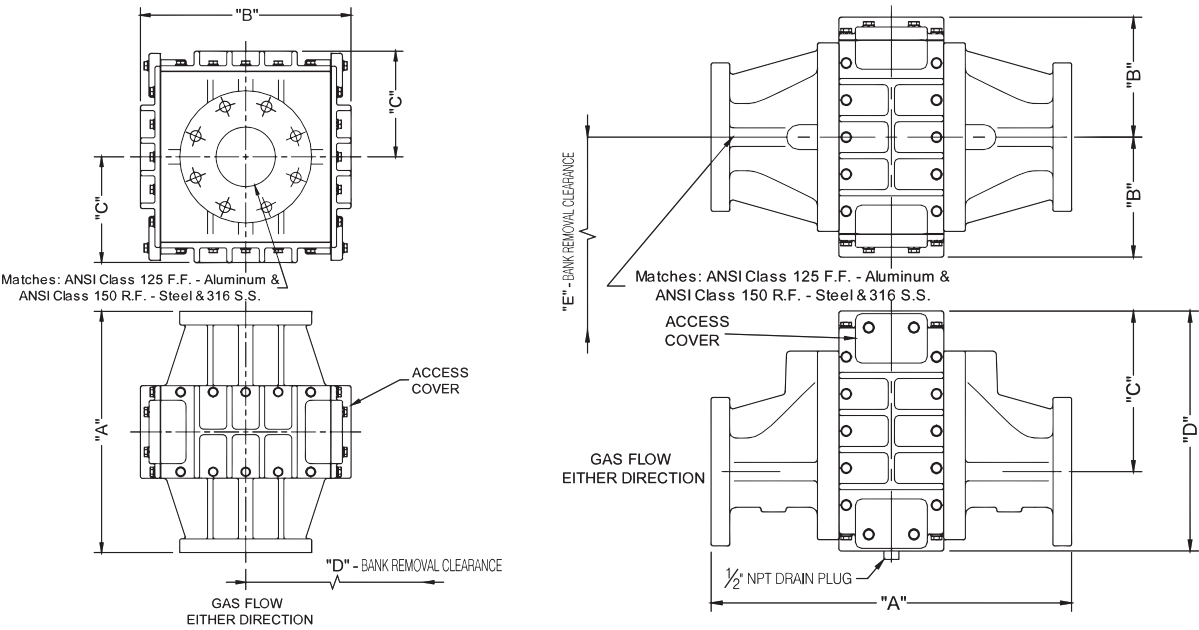
Insulation jacket

Reduces condensation or freezing

Key Performance Data

| Parameter               | Value                                          |
|-------------------------|------------------------------------------------|
| Size Range              | 2–12 in.                                       |
| Maximum Static Pressure | 10 psig                                        |
| Maximum Pressure Drop   | ≤ 1 psig                                       |
| Gas Group               | NEC Group D                                    |
| Mounting                | Vertical or Horizontal                         |
| Body and Seat           | Aluminum, Carbon Steel, or 316 Stainless Steel |
| Flame Element           | Aluminum or 316 Stainless Steel Plate Bank     |
| Hardware                | Aluminum or 316 Stainless Steel                |

Dimensions



| Dimensions (in Inches) |        |        |          |        |
|------------------------|--------|--------|----------|--------|
| Size                   | "A"    | "B"    | "C"      | "D"    |
| 2"                     | 12 5⁄8 | 9      | 5 1⁄16   | 19     |
| 3"                     | 13 7⁄8 | 11 3⁄4 | 6        | 23 1⁄4 |
| 4"                     | 16 5⁄8 | 14 1⁄2 | 7 1⁄4    | 28 1⁄8 |
| 6"                     | 21 1⁄2 | 16 1⁄2 | 9 3⁄8    | 31 1⁄8 |
| 8"                     | 27 1⁄4 | 21 5⁄8 | 11 1⁄8   | 38 5⁄8 |
| 10"                    | 28 3⁄8 | 24     | 13       | 41 5⁄8 |
| 12"                    | 34 3⁄8 | 31     | 14 11⁄16 | 50     |

| Dimensions (in Inches) |        |         |         |        |        |
|------------------------|--------|---------|---------|--------|--------|
| Size                   | "A"    | "B"     | "C"     | "D"    | "E"    |
| 2"                     | 14 1⁄2 | 5 1⁄16  | 6 1⁄8   | 10 1⁄8 | 18 3⁄4 |
| 3"                     | 16     | 6       | 7 5⁄8   | 12     | 22 7⁄8 |
| 4"                     | 20     | 7 1⁄4   | 9 1⁄16  | 14 1⁄2 | 27     |
| 6"                     | 24 3⁄8 | 9 3⁄8   | 11 7⁄8  | 18 3⁄4 | 30 3⁄4 |
| 8"                     | 32 1⁄8 | 11 1⁄8  | 14 1⁄4  | 22 1⁄4 | 38 1⁄4 |
| 10"                    | 35 1⁄2 | 13      | 16 7⁄8  | 26     | 41 5⁄8 |
| 12"                    | 34 3⁄8 | 14 1⁄16 | 19 3⁄16 | 29 3⁄8 | 49 1⁄2 |

Installation Note: Locate this equipment within 10 pipe diameters of a potential atmospheric ignition source.

Model Number Selection

The model number will consist of a base number 94309 followed by 8 digit numbers. These digits will represent 4 option tables

94309 - AB - CD - EF - GH

Table AB - Configuration

| Option AB | Configuration         |
|-----------|-----------------------|
| 00        | Vertical              |
| 11        | Horizontal with Drain |

Table C - Flange Type

| Option C | Type                 |
|----------|----------------------|
| 0        | ANSI 125/150lb. FF   |
| 1        | ANSI 125/150/lb. RF* |

\*RF not available in Aluminum

Table D - Size

| Option "D" | Size (Inches) |
|------------|---------------|
| 2          | 2             |
| 3          | 3             |
| 4          | 4             |
| 6          | 6             |
| 8          | 8             |
| 0          | 10            |
| 1          | 12            |

Table EF - Body, Bank and Frame Materials

| Option "EF" | Body Material       | Bank Material       | Frame Material      |
|-------------|---------------------|---------------------|---------------------|
| 01          | Aluminum            | Aluminum            | Aluminum            |
| 02          | Aluminum            | 316 Stainless Steel | Aluminum            |
| 03          | Cast Steel          | 316 Stainless Steel | 316 Stainless Steel |
| 04          | 316 Stainless Steel | 316 Stainless Steel | 316 Stainless Steel |

Table GH - Hardware

| Option GH | Material            |
|-----------|---------------------|
| 01        | 316 Stainless Steel |

Tube Banks Only

| Parts Number | Size (Inches) | Materials           |                     | Shipping Weight (lbs.) |
|--------------|---------------|---------------------|---------------------|------------------------|
|              |               | Bank                | Frame               |                        |
| 9430-16390   | 2             | Aluminum            | Aluminum            | 9                      |
| 9430-16391   | 2             | 316 Stainless Steel | Aluminum            | 22                     |
| 9430-16392   | 2             | 316 Stainless Steel | 316 Stainless Steel | 25                     |
| 9430-16450   | 3             | Aluminum            | Aluminum            | 14                     |
| 9430-16451   | 3             | 316 Stainless Steel | Aluminum            | 30                     |
| 9430-16452   | 3             | 316 Stainless Steel | 316 Stainless Steel | 35                     |
| 9430-16510   | 4             | Aluminum            | Aluminum            | 20                     |
| 9430-16511   | 4             | 316 Stainless Steel | Aluminum            | 55                     |
| 9430-16512   | 4             | 316 Stainless Steel | 316 Stainless Steel | 60                     |
| 9430-16560   | 6             | Aluminum            | Aluminum            | 35                     |
| 9430-16561   | 6             | 316 Stainless Steel | Aluminum            | 90                     |
| 9430-16562   | 6             | 316 Stainless Steel | 316 Stainless Steel | 100                    |
| 9430-16660   | 8             | Aluminum            | Aluminum            | 55                     |
| 9430-16661   | 8             | 316 Stainless Steel | Aluminum            | 145                    |
| 9430-16662   | 8             | 316 Stainless Steel | 316 Stainless Steel | 160                    |
| 9430-16730   | 10            | Aluminum            | Aluminum            | 85                     |
| 9430-16731   | 10            | 316 Stainless Steel | Aluminum            | 225                    |
| 9430-16732   | 10            | 316 Stainless Steel | 316 Stainless Steel | 240                    |
| 9430-16800   | 12            | Aluminum            | Aluminum            | 120                    |
| 9430-16801   | 12            | 316 Stainless Steel | Aluminum            | 310                    |
| 9430-16802   | 12            | 316 Stainless Steel | 316 Stainless Steel | 320                    |

Summary

The Model 94309 is applied where ignition can occur within connected vapor piping rather than at an open vent outlet. By stopping flame travel while maintaining normal vapor flow, it protects tanks and process equipment without introducing significant restriction. The serviceable plate element and passive operation provide predictable long-term protection in low-pressure gas systems.

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